Beta-Adrenergic Receptor Activation to Increase the Potency and Safety of Peripheral Blood Stem Cell Grafts

**Title:** Beta-Adrenergic Receptor Activation To Increase The Potency And Safety Of Peripheral Blood Stem Cell Grafts

**Invention:** This technology features a method for altering immune cell composition of peripheral blood stem cell grafts in donors or patients prior to transplantation to treat blood and immune deficiency diseases. The technology aims to prevent adverse reactions of transplants, such as tumor effects and activation of unfavorable immune cell subtypes.

**Background:** Hematopoietic stem cell (HSC) transplantation are effective in treating blood cancers and post-transplant infections. Every year, approximately 60,000 people worldwide receive HSC transplantation for treatment of blood cancers and other genetic disorders. An estimated total of 174,250 people in the United States are expected to be diagnosed with leukemia, lymphoma or myeloma in 2018. These diseases are expected to cause the deaths of an estimated 58,100 people in the US in 2018. HSC transplantation is a potentially curative treatment, however, viral infections and disease relapse are a common occurrence accounting for 78% of all deaths in the post-transplant period.

**Applications:**
- Immune cell alteration method
- Prevention of tumor effects and unfavorable immune cell subtypes
- Blood Cancer and Immune deficiency diseases.

**Advantages:**
- Preventive medicine
- Cost-saving, avoids costs of post-transplant infections treatments

**Licensing Manager:**

The University of Arizona, Tucson, Arizona
Tod McCauley
TodM@tla.arizona.edu
520-626-7916

Inventors
Richard Bond
Professor, Pharmacology
Emmanuel Katsanis
Professor, Pediatrics
Richard Simpson
Associate Professor, Nutritional Sciences-Res